IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the present application:

Claims 1-91 (WITHDRAWN).

92. (Currently Amended) A method [[for]] of preparing a substrate for adherence of an adhesive material thereto, the substrate having a surface, the method comprising the steps of:

generating an active zone using an electromagnetic radiation source; and exposing said substrate to the active zone, whereby the substrate is modified for adhering a material [[comprising]] including an adhesive onto said substrate by exposure to the active zone, and wherein the [[method is performed]] step of exposing occurs at substantially ambient pressure.

93. (Currently Amended) The method of claim 92, wherein the substrate [[comprises]] includes a polymer.

94. (Currently Amended) The method of claim 92, wherein said substrate [[comprises]] includes a sole of a shoe.

95. (Currently Amended) The method of claim 92, wherein said substrate

[[comprises]] includes a composite used in aircraft and space vehicle fabrication.

96. (Currently Amended) The method of claim 92, wherein said substrate [[comprises]] includes a component used in automobile manufacturing.

97. (Currently Amended) The method of claim 92, wherein said substrate [[comprises]] includes a well-plate, wherein said well-plate is used for biochemical analysis.

98. (Currently Amended) The method of claim 92, wherein said electromagnetic radiation [[further comprises]] includes infra-red radiation.

99. (Currently Amended) The method of claim 92, wherein [[of]] said electromagnetic radiation [[comprises]] includes radiation having a wave length in the range of about 150 nanometers to 300 nanometers.

100. (Currently Amended) The method of claim 92, wherein [[of]] said electromagnetic radiation [[comprises]] includes radiation having a wave length in the range of about 150 nanometers to 250 nanometers.

101. (Currently Amended) The method of claim 92, wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 2.0 joules per square centimeter to about 5,000 joules per square centimeter.

102. (Currently Amended) The method of claim 92, wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 10 joules per square centimeter to about 1000 joules per square centimeter.

103. (Currently Amended) The method of claim 92, [[further comprising:]] wherein the steps of exposing includes conveying the substrate through said active zone using a conveyor system whereby the substrate is exposed to the active zone for a residence time.

104. (Currently Amended) The method of claim 103, wherein the residence time is in [[the]] a range of from about 0.1 seconds to about 10 seconds.

105. (Currently Amended) The method of claim 103, wherein the residence time is in [[the]] a range of from about 0.2 seconds to about 5 seconds.

106. (Original) The method of claim 103, wherein the conveyor system further [[comprises]] includes a conveyor belt for carrying the substrate.

107. (Currently Amended) The method of claim 103, further comprising [[:]] the step of evacuating the active zone adjacent to the conveyor system.

108. (Currently Amended) The method of claim 92, further comprising [[:]] the

step of exposing the substrate to a discharge from an electro-ionization device.

109. (Original) The method of claim 108, wherein the electro-ionization device is located in the active zone.

110. (Currently Amended) The method of claim 108 further comprising [[:]] the step of circulating a gas [[past]] proximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate.

111. (Currently Amended) The method of claim 103, further comprising [[:]] the step of exposing the substrate to an infra-red radiation source, wherein the substrate is heated by exposure to [[said]] infra-red radiation generated by the infra-red radiation source.

112. (Currently Amended) The method of claim 111, wherein the step of exposing the substrate to [[said]] infra-red radiation [[source is performed]] occurs prior to the step of exposing said substrate to the active zone.

113. (Currently Amended) The method of claim 92, further comprising [[:]] the step of [[injecting]] directing a gas over the surface of the substrate exposed to the active zone.

114. (Currently Amended) The method of claim 113, wherein the gas to be

injected over the surface of the substrate exposed to the active zone [[comprises]] includes a gas selected from the group consisting of carbon tetrachloride, chloroform, halogen functionality compounds, oxygen functionality compounds, water vapor, oxygen, air, silanes, amine functionality compounds, ammonia [[,]] and nitrogen.

115. (Currently Amended) A method [[for]] of preparing a substrate for adherence of an adhesive material thereto, the substrate having a surface, the method comprising the steps of:

generating an active zone at substantially atmospheric pressure using an electromagnetic radiation source, wherein [[said]] electromagnetic radiation generated by said electro-magnetic radiation source is radiation having a wave length in the range of about 150 nanometers to 250 nanometers, and exposing the surface of the substrate to electromagnetic radiation, wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 10 joules per square centimeter to about 1000 joules per square centimeter, whereby the polymer substrate is modified for adhering a material [[comprising]] including an adhesive onto [[said]] the surface of the polymer substrate by [[exposure]] exposing the surface to said active zone; [[P1]] the step of exposing including conveying the substrate through said active zone, whereby the substrate is exposed to the active zone for a residence time, wherein the residence time is in [[the]] a range of from about 0.2 seconds to about 5 seconds [[; evacuating the active zone adjacent to the conveyor system; exposing the surface to an electro-ionization device; circulating a first gas stream past said electro-ionization device so that the first gas stream flows past the electro-ionization device and onto the surface;

exposing the surface to an infra-red radiation source; and injecting a second gas stream over the surface of the substrate]].

Claims 116-118 (Cancelled)

119. (Currently Amended) The method of claim 115, wherein the substrate is [[comprised]] includes of a synthetic polymer.

120. (Currently Amended) The method of claim 115, wherein the substrate [[is comprised of]] includes a naturally-occurring polymer.

121. (New) A method of preparing a polymer substrate for adherence of an adhesive material thereto, the substrate having a surface, the method comprising the steps of:

providing a conveyor system including a conveyor and an electromagnetic radiation source;

generating an active zone proximate the conveyor at substantially atmospheric pressure using the electromagnetic radiation source, wherein electromagnetic radiation generated by the electromagnetic radiation source is radiation having a wave length in the range of about 150 nanometers to 250 nanometers, and

exposing the surface of the substrate to the electromagnetic radiation generated by the electromagnetic radiation source, wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 2.0 joules per square centimeter to about 5,000 joules per square centimeter, whereby the polymer substrate

is modified for adhering a material including an adhesive onto the surface of the polymer substrate by exposing the surface to said active zone; the step of exposing including conveying the polymer substrate through said active zone, whereby the polymer substrate is exposed to the active zone for a residence time, and wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds.

122. (New) The method of claim 121, further comprising the step of adhering a material including an adhesive onto the surface of the polymer substrate for the purposed of bonding the material to the substrate.

123. (New) The method of claim 122, further comprising the step of evacuating the active zone adjacent to the conveyor system.

124. (New) The method of claim 123, further comprising the step of exposing the surface of the substrate to a further radiation generated by an electro-ionization device; circulating a first gas stream past the electro-ionization device so that the first gas stream flows past the electro-ionization device and onto the surface of the substrate; wherein the further radiation is infra-red radiation.